

Attachment B

Guidelines for Responding to Mercury Spills and Releases in Schools and Residences

GUIDELINES FOR RESPONDING TO MERCURY SPILLS & RELEASES IN SCHOOLS AND RESIDENCES

REGION 5 US EPA

INTRODUCTION:

Over the past several years, the number of mercury releases in Region 5 involving schools and private residences have increased. In many of these incidents, children obtained unsecured elemental (metallic) mercury and contaminated schools, their own residences and the residences of others. The Superfund Emergency Response Branch responds to releases of mercury into the environment, and a number of funding and enforcement issues have been raised regarding federal responses at educational institutions and private residences where spilled mercury constitutes a threat to public health, welfare or the environment. Specific issues center around the use of federal dollars to cleanup and restore private property contaminated during the release, particularly if a school or property owner is fully or partially responsible for the incident. Associated with this issue is whether, and under what circumstances, the Region should pursue cost recovery from educational institutions and home or property owners for federal expenditures incurred during cleanups.

EXPOSURE TO MERCURY:

Mercury is found in several chemical forms, such as: elemental, inorganic, and organic.

Elemental Mercury: Elemental mercury, also referred to as metallic mercury, is a shiny, silver-white, odorless liquid, that is used in thermometers, dental fillings, and batteries and is also used industrially to produce chlorine gas and caustic soda. Elemental mercury readily evaporates at room temperature to form a colorless, odorless gas. In an enclosed space, even a relatively small amount of mercury can result in the accumulation of a very high level of mercury vapor in indoor air. Therefore, exposure via inhalation of elemental mercury is a particular concern when mercury is spilled in homes or in other enclosed areas.

Inorganic Mercury: Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually in the form of white powders or crystals. Mercury salts are used in skin-lightening creams and in antiseptic creams and ointments. Inorganic mercury does not readily evaporate and is not easily inhaled; however, inorganic mercury can be absorbed across the gastrointestinal tract and the surface of the skin. Therefore, ingestion and skin contact can result in exposure.

Organic Mercury: Mercury also combines with carbon to make organic mercury compounds. The most common form is methyl mercury, which is produced mainly by small organisms in the water, soil, and sediment. Increasing emissions of mercury into the environment can increase the levels of methyl mercury that these small organisms make. The most significant source of human exposure to organic mercury is through diet, particularly from fish products. Since organic mercury is easily absorbed through the gastrointestinal tract and through the skin, ingestion and skin contact can result in exposure.

HUMAN HEALTH EFFECTS:

The nervous system is extremely sensitive to the toxic effects of all forms of mercury. Exposure to high levels of elemental, inorganic, or organic mercury can permanently damage the brain, kidneys, and the developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

Short-term exposure to high levels of metallic mercury vapors also may cause effects on other organ systems, including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

Mercury absorbed through the lungs, gastrointestinal tract or the skin can accumulate in the brain and kidney, and is slowly excreted from the body through the urine. Exposure to mercury can be verified by testing blood, urine, or hair samples. Individuals who have elevated levels of mercury in their body can be treated with “chelating agents” to increase the rate of excretion of mercury from their body.

NOTIFICATION AND RESPONSE:

Telephone Duty Officers or other Response personnel receiving notification of a spill or release of mercury in a home or school should assess the seriousness of the incident before dispatching a Response On-Scene Coordinator (OSC) to investigate (Appendix A provides a list of questions to help screen mercury notifications). Small spills (e.g. broken thermometers, etc) may be addressed through verbal advice to the homeowner. Many pharmacies carry cleanup kits for small residential mercury spills. The Telephone Duty Officer or Response OSC should also provide the homeowner with information about the proper disposal of mercury and mercury contaminated materials from the cleanup. In other incidences (e.g. a recent spill which has been contained), local responders may be able to provide technical assistance regarding the cleanup and disposal of mercury and mercury contaminated materials. In incidents where public health, welfare or the environment has the potential to be impacted, or mercury has been spread throughout a residence, a school or a neighborhood, or where the extent of contamination is not certain, an OSC should be dispatched to investigate.

After the OSC has investigated the incident and a decision has been made to perform an emergency removal action, the OSC will contact a member of the Mercury Enforcement Team (Team) as soon as reasonably possible. The Team consists of an Enforcement Specialist, an ORC Attorney and a Civil Investigator. The Team will be the same for all mercury sites to provide for consistency in the enforcement approach. The OSC, Enforcement Specialist and/or ORC attorney will decide if a situation warrants further investigation. If further investigation is

needed, the Mercury Civil Investigator will be dispatched as soon as possible after the response action is initiated. As outlined in this document and the U.S. EPA Region 5 Mercury Response Guidebook, the OSC will also contact health officials to assist with the cleanup effort.

ENFORCEMENT:

PRP LEAD

The Response OSC and the Enforcement Team should reach a timely consensus concerning the willingness and ability of a PRP to undertake the required response action. With the possible exception of small, contained spills, homeowners generally do not have the technical expertise to conduct a mercury removal on their own, or with contractor assistance. Because of the potential harm that mercury presents to public health, welfare or the environment, the Response OSC will ensure that PRP lead removal actions are conducted in a safe and timely manner, including the transportation, storage and disposal of contaminated materials. Inappropriate cleanup techniques and/or disposal options can result in wide-spread mercury contamination, additional risk to public health, welfare, or the environment and greater cost to the government.

FUND LEAD

Insurance Indemnification: When the Team determines that it is neither practical, efficient nor effective to have the PRP undertake the required response, then the site owner or operator will be required to reveal information about his/her insurance coverages with an aim of assisting the Agency in making a determination about insurance coverages. In some instances, the proceeds of insurance policies could well serve to help indemnify Agency response costs. However, because some policies often allow the site owner or operator to claim reimbursement for personal property or use losses resulting from mercury contamination caused to the contents of a home, institution or facility or to down-time, loss of rental income or incurred to replace structural damage, such portions of an insurance benefit must be segregated from that portion attributable to the mercury removal. Another situation which requires a differentiation as to the loss that is being paid is that sometimes more than one insurance policy may exist which covers a multitude of losses or multiple insureds. Most often, such a scenario exists when a site is owned by one party and leased to another or when separate entities are involved in the management and ownership of facilities.

To help assure that Agency response costs only are paid under the provisions of one or more insurance policy and to facilitate the Agency's claim to such insurance, efforts must be made by the Response OSC at having the site owner, operator or both sign the "Assignment" attachment. Once signed, a copy should be given to those that signed it.

Third-Party Reimbursement: Often the negligent conduct of non-owners and non-occupants of a site substantially facilitates the release of mercury into the environment by others. Illustratively, schools which fail to lock chemical storage cabinets or to have policies or procedures precluding a student from easily removing mercury from school grounds or businesses which haphazardly abandon facilities containing mercury where children can easily gain access are examples of such negligent conduct. In such cases, the conduct of such parties contributes, aids or assists in the eventual release of mercury. Although such party may not have caused the actual release of mercury to the environment, their neglect in precluding access to or safeguards against its possession by the person that caused the release can result in the imposition of civil liability against such party.

In circumstances where a third party may appear to have such civil liability, the Response OSC will endeavor to have the site owner or occupants execute the “Assignment” permitting the Agency to recover response costs, and only response costs, against such party. Once signed, a copy should be given to all that signed it.

MERCURY RESPONSE AND CLEANUPS:

EPA’s response to mercury spills in homes has included relocation of residents, gathering visible mercury using a variety of techniques, and heating and ventilating houses to drive off the harmful mercury vapors. In some instances, walls, carpeting, and floors have had to be removed because of mercury contamination. Contaminated personal possessions that are porous (ie. clothing, bedding, furniture) have been properly disposed of when mercury could not be removed. Specific technical and administrative guidance for conducting a mercury response are provided in the “U.S. EPA Region 5 Mercury Response Guidebook.”

ELIGIBLE RELOCATION AND REPLACEMENT COSTS:

Relocation Costs: A CERCLA response action may require that U.S. EPA relocate persons temporarily for their health and/or safety, or to allow U.S. EPA to conduct the necessary clean up activities. Temporary relocations are carried out under removal and remedial authorities and may occur as part of an emergency response or a cleanup with longer planning period. Each type of assistance or procedures described in the “Guidance on Temporary Relocations During Superfund Response Actions” (Temporary Relocation Guidebook) and the “Region 5 Mercury Response Guidebook” will not apply to every site or effected individual because the range of response actions that may involve temporary relocation are so broad, and because other site specific factors must be considered. Due to the inherent constraints present with the emergency responses, OSCs, where possible, should implement the portions of the Temporary Relocation Guidebook in such a way that they do not impede the emergency response actions. Specific policies and implementation of relocation operations during removal actions, as well as the parameters and the administration of temporary relocation assistance, are provided in the Temporary Relocation Guidebook.

Replacement Costs: Hazardous substance releases can also damage or contaminate private property, or property may be damaged in the response effort. In these circumstances, EPA may consider compensating private citizens for such property. Most losses suffered by private citizens should be compensated by the party or parties responsible for the contamination; however, if a PRP cannot be identified or is not viable, EPA may elect to compensate for property loss due to a hazardous substance release or the resulting response effort, although some circumstances may limit eligibility for compensation under Superfund. Superfund may not cover losses due to the negligence of contractors; the contractors themselves would be responsible for such losses. Also, citizens that have been found to be PRPs at a site are generally not eligible for compensation. Additional information on the eligibility of replacement costs may be found in the U.S. EPA draft document “Guidance on Compensation for Property Loss in Removal Actions” (May 1995).

The following considerations should be taken into account in determining whether a homeowner or educational institution is a potentially responsible party:

- * Where did the mercury come from (industry, school, private residence)?
- * How did the release occur?
- * Who reported the release, and to whom was it reported?
- * Were responsible actions taken to contain or limit the spread of the contamination?
- * Was adult (over 18 year old) negligence involved in the acquisition, ownership, storage or release of the mercury?
 - inadequately secured mercury probably constitutes negligence.
 - storage of mercury in a privately owned residence, garage or shed, probably constitutes negligence.
- * If adult negligence was involved, is the PRP viable? To what extent?
- * In general, U.S. EPA Region 5 considers educational institutions to be PRPs, when the source of the mercury contamination came from their facilities (science laboratories, etc.) or activities. If the mercury contamination came from an outside source (industry, private residence, etc), in general, the educational institution would not be considered a PRP.

Finally, if an educational institution or homeowner is determined to be responsible for the release, but not a viable PRP (ie. cannot pay cleanup costs), EPA may fund costs associated with the cleanup and basic restoration of the PRP’s building or residence, but not costs associated with the PRP’s furnishings or property (furniture, appliances, clothing, toys, etc.). The building or residence may be cleaned or restored only to the extent that it does not present a health threat to the residents or occupants, and the building is habitable. EPA will not

compensate for losses associated with moveable furnishings and private property. In general, this would include area carpeting, and/or wall-to-wall carpeting placed over a finished floor (hardwood, tile, linoleum). Wall-to-wall carpeting placed over plywood flooring would be considered part of the building, and could be replaced to make the residence “habitable.”

At the discretion of the OSC, EPA may provide compensation through three methods: 1) restoring property to its original condition; 2) providing replacement property of similar value, or 3) reimbursing owners in cash for the value of lost property. In general, restoration should be the first option considered, followed by replacement.

LEGAL AUTHORITIES and CONSIDERATIONS:

Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. § 9604, authorizes EPA to remove or arrange for the removal of any hazardous substance, pollutant or contaminant if it is deemed necessary to protect the public health, welfare or the environment. Mercury is a characteristic waste under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 *et seq.*, as amended, and 40 C.F.R. § 261.24. Mercury exhibits the characteristics of toxicity D009, and is therefore a hazardous substance under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). Therefore, EPA has the legal authority to respond to mercury releases.

Section 300.65(a)(2) of the NCP requires the lead agency, to the extent practicable, to search for Potentially Responsible Parties (PRPs) and attempt to have them perform the necessary removal action. PRPs are past and present owners and operators of a facility, people who arranged for disposal or treatment of hazardous substances, and anyone who accepts or accepted hazardous substances for transport to disposal or treatment facilities and selected the site from which there is an actual or threatened release. It should be noted that homeowners or educational institutions are not excluded from the definition of PRPs.

Section 106 of CERCLA, 42 U.S.C. § 9606 authorizes EPA to issue administrative orders to compel PRP response, and authorizes EPA to enforce the terms of the administrative orders and compel noncomplying PRPs to respond through judicial action. If a PRP does not conduct the cleanup, EPA may initiate a Fund-financed removal action and seek reimbursement from PRPs for all response costs incurred by EPA not inconsistent with the NCP. See Section 107 of CERCLA, 42 U.S.C. § 9607. Section 107 of CERCLA, 42 U.S.C. § 9607 imposes strict liability upon PRPs and has been interpreted by the courts to impose joint and several liability upon all PRPs involved at a site where harm is not divisible. Decisions to pursue or not to pursue legal remedies, and/or cost recovery from PRPs for the release will be made by the Mercury Enforcement Team.

Section 122 of CERCLA, 42 U.S.C. § 9622 authorizes EPA to enter into agreements with PRPs to perform response actions. If the threat posed by the mercury release is serious and/or immediate enough to warrant an emergency federal-lead response, the OSC should not "compel" a homeowner to perform a mercury cleanup; however, if the threat is not serious

and/or immediate and if the homeowner volunteers to hire a qualified contractor to conduct the cleanup, under EPA oversight, the OSC may consider this as a viable option.

Section 111(a) of CERCLA, 42 U.S.C. § 9611(a) authorizes EPA the authority and discretion to appropriate monies from the Hazardous Substance Superfund for "[p]ayment of any claim for necessary response costs incurred by any other person as a result of carrying out the national contingency plan established under Section 1321(c) of Title 33 and amended by section 9605 of this title..." Therefore, damage or contamination to land or property incurred during a response action may be compensable by EPA, particularly where the release was on the property of an innocent party. See Superfund Removal Procedures Manual, Office of Solid Waste and Emergency Response (OSWER) Directive 9360.0-03B (February 1988). If this situation occurs, the OSC should immediately consult with the Office of Regional Counsel.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act (URA), 42 U.S.C. § 4601, ensures uniform and equitable treatment of persons who may be displaced from their homes and businesses during federal programs, such as disaster relief or national emergencies, or as a result of projects involving acquisition of a private property. URA provides for the issuance of relocation benefits to persons displaced by such actions. When an OSC determines that activities at a response action will affect local residents, U.S. EPA is authorized under Executive Order 12580, Superfund Implementation, to temporarily relocate threatened individuals as part of the removal action. According to URA, the U.S. EPA OSC makes the determination of the need for relocations that are carried out in conjunction with Superfund removal activities. PRP's are generally not eligible to receive any relocation benefits; therefore, OSCs should consult with the Office of Regional Counsel and EPA's Office of Enforcement before making any benefits available to PRPs." (OSWER Directive 9360.3-09, January 1998)

APPENDIX A
ASSESSING MERCURY NOTIFICATIONS

A Guide for OSC's

The Telephone Duty Officer or OSC receiving a mercury spill notification should attempt to obtain the following information:

1. What was the source and amount of the mercury that was spilled?
 - A. If mercury was spilled from a small broken thermometer, ask where the thermometer was obtained, using a checklist that includes hospital/physician. (This information may be needed to target other preventative actions.) End questioning and send a "Healthcare Without Harm" brochure.
 - B. If the mercury was from a source other than a thermometer, continue with the questions.
2. Where was the mercury spilled?
3. When was the mercury spilled?
4. Does anyone who may have been exposed have any physical symptoms or has anyone been seen by a physician?
5. What is the name, age, sex of each resident or individual who may have been exposed to the mercury? Is it possible that any of these individuals are pregnant?

If the spill is larger than an amount spilled from a thermometer, refer to an OSC and form a team which includes the OSC, a representative from the Enforcement Team, and a representative for health issues.

Roles and Responsibilities of Team Members:

OSC

- team leader - establishes task force, consults Enforcement Team Members, develops plans;
- oversees cleanups conducted by schools and their contractors or state/local environmental agencies;
- conducts or oversees residential cleanups;
- speaks with the media;

- determines need for community contact/public meetings;
- writes POLREPs; and
- writes START activity reports.

Enforcement Team

- immediately determines whether PRP or fund lead; and
- informs team of information needed to make decision regarding PRP.

Health Team

- determines need for relocation;
- determines need for medical testing;
- assists in obtaining biological or medical testing;
- interprets and notifies residents of biological or medical testing results;
- helps set protective (analytical) cleanup levels;
- conducts health education and outreach, and
- works with state and local health representatives (determine their roles in above tasks as well as establishing legal authority for action when needed, issuing alerts, serving as contacts for community, etc.).